

Notice of Allowability

Application No.

09/750,264

Examiner

Dmitry Levitan

Applicant(s)

GUVEN ET AL.

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/22/07.
2. ☒ The allowed claim(s) is/are 7-10 and 28-32, renumbered as 1-4, 6-9 and 5.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other Attachment A.

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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Steven A. Shaw on 7/23/07.

The application has been amended as follows:

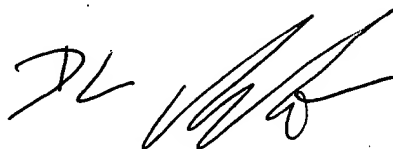
- a. Claims 17 - 27 have been cancelled as non-elected claims.
- b. Claims 7-10 and 28-32 have been amended (for clarity) per Attachment A.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to be 'DL' followed by a stylized name.

Dmitry Levitan
Primary Examiner
Art Unit 2616

**DMITRY LEVITAN
PRIMARY EXAMINER**

Attachment A.

LISTING OF CLAIMS

1-6 cancelled.

7. (Currently Amended) A method for reducing data loss in the event of packet loss in a modem relay connection over a packet network including a transmitting modem and a transmitting gateway, a receiving modem and a receiving gateway, the method comprising:

providing a packet format including a header portion, a sequence number and a data portion;

dividing said data portion into a plurality of segments; designating one of said segments as a new data segment;

providing a plurality of sequential blocks of modem data from said transmitting modem to said transmitting gateway;

retaining a predetermined number of said plurality of sequential blocks of modem data at said transmitting gateway, by dropping thea first oldest block and retaining thea most recent block; providing thesaid most recent block of data in said designated new data segment of said data portion of said packet;

providing thea plurality of remaining retained blocks of data in thea remainder of said said plurality of segments;

wherein:

each time said transmitting gateway receives a new block of data from said transmitting modem, saidan additional oldest block is dropped from said remaining retained setblocks of data, creating a new

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remaining retained blocks of data;

said new block of data is encoded in ~~the~~ next data packet as ~~the~~ new data block; and

said new remaining retained blocks are encoded into said data packet as a plurality of redundant data blocks;

wherein the plurality of redundant data blocks are added by a data redundancy with a repetition count k , and

wherein the redundancy is performed as data encoding into each packet $[[,]]$ according to the following formula, where x is ~~the~~ current packet sequence number, N represents a plurality of data bits corresponding to each of said data packet as said data packet is, and

each iteration encodes said plurality of data bits for ~~the~~ current packet x and a plurality of previous packets into ~~the~~ data length of the current packet, ~~the~~ an addition sign signifying grouping the data bits together in a block within the packet for each iteration:

$$[x-j]N + [x-i]N$$

where $i = (0 \text{ to } (k - 1))$ and $j = (1 \text{ to } k)$ and each of the variables i, j increase by 1 in each iteration up to k levels of iterations that are performed for each of said packets;

transmitting said packets from said transmitting gateway to said receiving gateway.

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8. (Currently Amended) The method of claim 7, ~~wherein said further comprising lost packet recovery at said receiving gateway includes, said lost packet recovery:~~

receiving said transmitted packets;

reading said sequence numbers of a plurality of consecutively received packets to ~~determine~~detect a plurality of lost packets loss and thus a data lost- including;

comparing ~~the~~said sequence number of a sequentially ordering of said received packets, and determining ~~the~~a difference in ~~the~~said compared sequence numbers; and

providing the redundant data corresponding to said data lost during said packet loss~~[[,]]~~ to said receiving modem.

9. (Currently Amended) The method of claim 8, wherein ~~the~~a number of said retained predetermined number of sequential blocks is re-negotiated when said number of detected ~~missing~~lost packets exceeds said retained predetermined number of sequential blocks between ~~the two~~said transmitting gateway and said receiving gateways.

10. (Currently Amended) The method of claim 9, further ~~including~~comprising:

~~Detection of~~detecting a value of the number of lost packets which exceeds the value of said retained predetermined number of sequential blocks;

~~said receiving gateway~~reporting said detection; and

adjusting the redundancy to compensate for increases in packet loss across said packet network.

11-27 cancelled.

28. (Currently Amended) A method for modem relay data redundancy, comprising:

establishing a modem relay transmission of a plurality of packets between a first modem relay unit (MRU) and a second MRU over a packet network,

wherein ~~the~~ each packet in the transmission between the first and the second MRUs is formatted with a sequence number uniquely assigned to each packet;

negotiating a data redundancy repetition count k between the first and the second MRUs;

applying a data redundancy to the modem relay transmission,

wherein the redundancy is performed as data encoding into each packet, according to the following formula where x is ~~the~~ a current packet sequence number, N represents a plurality of data bits corresponding to each packet as the packet is, and each iteration encodes said data bits for the current packet x and previous packets into ~~the~~ a data length of the current packet, ~~the~~ an addition sign signifying grouping the data bits together in a block within the packet for each iteration:

$$[x-j]N + [x-i]N$$

where $i = (0 \text{ to } (k - 1))$ and $j = (1 \text{ to } k)$ and each of the variables i, j increase by 1 in each iteration up to k levels of iterations that are

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performed for each packet.

29. (Currently Amended) The method of claim 28, wherein each k iteration of the data redundancy in each packet encodes together N bits of data ~~A~~ from a first packet and a second packet paired together, and wherein the second packet has ~~the~~ preceding packet sequence number to ~~the~~ first packet in the transmission.

30. (Currently Amended) A system for modem relay, comprising:

a first modem relay unit (MRU) transmitting packetized data in a plurality of packets over a packet network to a second MRU;

wherein the first MRU formats each packet in the transmission with a sequence number uniquely assigned to each packet,

the first and the second MRUs negotiate a data redundancy repetition count k between the first and the second MRUs,

the first MRU applies a data redundancy to the modem relay transmission,

wherein the redundancy is performed as data encoding into each packet, according to the following formula where x is ~~the~~ current packet sequence number, N represents a plurality of data bits corresponding to each packet as the packet is, and each iteration encodes said data bits for the current packet x and previous packets into ~~the~~ data length of ~~the~~ current packet, ~~the~~ an addition sign signifying grouping the data bits together in a block within the packet for each iteration:

$$[x-j]N + [x-i]N$$

where $i = (0 \text{ to } (k - 1))$ and $j = (1 \text{ to } k)$ and each of the variables i, j

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increase by 1 in each iteration up to k levels of iterations that are performed for each packet.

31. (Currently Amended) The system of claim 30, wherein each k iteration of the data redundancy in each packet encodes together N bits of data A from a first packet and a second packet paired together, and wherein the second packet has ~~the~~ preceding packet sequence number to the first packet in the transmission.

32. (Currently Amended) The method of claim 7, wherein each k iteration of the data redundancy in each packet encodes together N bits of data A from a first packet and a second packet paired together, and wherein the second packet has ~~the~~ preceding packet sequence number to the first packet in the transmission.